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hind the ocellated spot is a small, milk-white spot as described for the type.

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## NOTES ON THE MUHLENBERG'S TURTLE.

In the April (1917) issue of COPEIA, Dr. H. L. Babcock refers to a new record at Newport, R. I., as the northern limit of distribution. Quite obviously his reference to "southern New York" like that of Ditmars ('07, p. 51) must mean in the vicinity of New York City, and not the southern tier of counties of central and western New York State. Like Dr. Babcock, I can little believe his specimens escaped animals and would not be surprised to find this species even farther north in N. E. or west into southern Ontario in the light of its northern limit in New York State.

In central New York we have formerly recorded this species as local both at Ithaca and near Geneva. At Ithaca we have found it in only one small meadow—an alder swamp with an undergrowth of *Caltha palustris*, etc.—but this area was originally sphagnumaceous and now has a few remains of this floral association. This may account for the sporadic occurrence of these creatures here, and no doubt this is a vanishing colony.

In 1877, Mr. C. Atwood brought Dr. Burt G. Wilder a specimen of the Muhlenberg's turtle captured June 15. Dr. Wilder's notes gave the locality as "Buttermilk ravine" and he received the turtle on July. 5. It was a female which had laid one egg in water, June 20, but this was broken. Forty days later, July 30, it laid another in sand in captivity and had one other in its oviduct to be laid. The laid (No. 154) egg was 30 mm. x 16 mm. in size while the ovi-

ducal one (155) was 32 x 16 mm. The female had a carapace 9 cm. long x 6.4 cm. wide. This specimen probably came from Larch Meadows near the mouth of Buttermilk creek and not from Buttermilk ravine, because in May, 1908, Mr. J. S. Gutsell took a female *C. muhlenbergii* (carapace 8.4 x 6.1 cm.) in the midst of the above meadows. Two years later (April 9, 1910), he and G. C. Embury as leaders of an Agassiz Club trip, found two specimens close together in the southwestern corner of these meadows and they proved male (carapace 9.6 x 6.6 cm.) and female (9.0 x 6.8 cm.) respectively.

These specimens of almost equal size differ markedly. The male has a much deeper and wider head, longer snout, heavier fore-claws, quite concave plastron and tail twice as thick as that of the female. The female is wider, has the posterior plastral notch sharper, and the exposed preanal portion of the tail one-half as long as in the male and the plates on the back of the tail much smaller. The differences recorded for these two specimens hold for similar specimens from other localities and for a pair taken in 1917. In these particular specimens the male shell is almost smooth and that of the female very concentric on each plate, but this is an individual variation. In spite of vigilant search no more individuals were taken near Ithaca until May 5, 1915, when Dr. Philip A. Munz secured a male in the same place. This example has a carapace 9.3 x 6.3 cm. At present our zoological laboratory has a pair secured June 10, 1917, in the same region by Mr. A. R. Shadle. He captured them in the southern end of Larch Meadows within 3 hours of each other and at practically the same spot.

Since 1906, our botanical department has from time to time brought home specimens or records of this species from the Junius marl ponds (7 miles north of Geneva, and, in Wayne County). Here the species is taken in the narrow streams connecting the

marl ponds or sometimes in the ponds and bogs. Our first record is May 26, 1906. On July 18, 1908, one small specimen apparently newly hatched was taken and its carapace measures 34 x 29 mm. This turtle is not common at Junius yet other subsequent records have been made or received by the writer, and Prof. E. H. Eaton of Geneva, N. Y., in 1914 received a specimen from the same place. The same gentleman reports this species from Bergen Swamp (several miles west of Rochester, and in Orleans Co.). Later, July 22, 1917, Mr. E. E. Honey secured an adult male (8.2 x 5.8 cm.) in the most marly portion of this swamp and others also recorded it in the same region in the summer of 1917. Also, in some of the drainage ditches along the truck farms of this region, this species rarely appears.

At Westbury, N. Y., (west of Oswego, N. Y.), Messrs. F. P. Metcalf, Ludlow Griscom and myself took a specimen (carapace about 6 cm. long) in an open moor-like area on August 13, 1916.

A common associate of this rare form is the spotted turtle (*Chelopus guttatus*) but the latter is widespread in distribution, and frequents more or less swampy woods as well as sphagnaceous or marly places, while the Muhlenberg's turtle seems restricted to the latter areas in our region. Without doubt, the Muhlenberg's turtle occurs in the sphagnaceous, marly swamps across New York State from Syracuse or Albany to Buffalo and possibly into the province of Ontario, provided such vegetal pockets be there present. Surely it can no longer be considered "Confined to southern (southeastern) New York, New Jersey, and eastern Pennsylvania." Like the four-toed salamander (*Hemidactylium scutatum*) it is vanishing with the drying up or draining of sphagnum bogs and "feather-bed" swamps.

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